

REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) 30 October 2014		2. REPORT TYPE FINAL		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE  The New Burma Road(s): How a Networked System of Roads will Best Orient Myanmar towards Economic Success				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
				5d. PROJECT NUMBER	
6. AUTHOR(S)  Lieutenant Colonel Francisco Rivera, USAF				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
				8. PERFORMING ORGANIZATION REPORT	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)  Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S NUMBER(S)	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)					
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution Statement A: Approved for public release; distribution is unlimited. Ref: DOD Directive 5230.24					
13. SUPPLEMENTARY NOTES: A paper submitted to the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations. The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.					
14. ABSTRACT Roads are certainly not the most glamorous component of a nation's transportation infrastructure. Nonetheless, roads represent the critical link between a nation's transnational trade capacity and the domestic mobility of its population. Myanmar's transportation infrastructure is remarkably underdeveloped, but due to its geostrategic location, there are opportunities for the nation to improve connectivity quickly to its neighbors. In 2011, the Government of the Union Myanmar (GOUM) introduced sweeping reforms in order to put the country on the path to economic success after years of destitution. These reforms have attracted the interests of both regional and global investors. Long recognized as one of the catalysts to fuel a nation's economy, foreign investments are pouring into Myanmar. As the GOUM moves forward with its plan to develop its economic potential, it needs to develop its transportation infrastructure methodically. Because roads are at the nexus of transnational trade and domestic economic opportunity, prioritizing the development of a networked road system will allow the GOUM to maximize Myanmar's economic benefit.					
15. SUBJECT TERMS Infrastructure, transportation, roads, transnational trade, economic corridors, economic growth, connectivity, logistics					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES  33	19a. NAME OF RESPONSIBLE PERSON Chairman, JMO Dept
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (include area code) 401-841-3556

**NAVAL WAR COLLEGE  
Newport, R.I.**

**The New Burma Road(s): How a Networked System of Roads will Best Orient  
Myanmar towards Economic Success**

**By**

**Lt Col Francisco Rivera**

**A paper submitted to the Naval War College in partial satisfaction of the requirements  
of the Department of Joint Military Operations.**

**The contents of this paper reflect my own personal views and are not necessarily  
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**Signature: //SIGNED/FR/30 Oct 14//**

**30 October 2014**

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## **Abstract**

Roads are certainly not the most glamorous component of a nation's transportation infrastructure. Nonetheless, roads represent the critical link between a nation's transnational trade capacity and the domestic mobility of its population. Myanmar's transportation infrastructure is remarkably underdeveloped, but due to its geostrategic location, there are opportunities for the nation to improve connectivity quickly to its neighbors. In 2011, the Government of the Union Myanmar (GOUM) introduced sweeping reforms in order to put the country on the path to economic success after years of destitution. These reforms have attracted the interests of both regional and global investors. Long recognized as one of the catalysts to fuel a nation's economy, foreign investments are pouring into Myanmar. As the GOUM moves forward with its plan to develop its economic potential, it needs to develop its transportation infrastructure methodically. Because roads are at the nexus of transnational trade and domestic economic opportunity, prioritizing the development of a networked road system will allow the GOUM to maximize Myanmar's economic benefit.

## Introduction

Let's face it...there is nothing glamorous about roads. Every day millions of Americans travel along the thousands of miles of roads that connect sprawling cities to bucolic countrysides across the contiguous United States. Odds are they would probably not notice much about the roads they drive on unless they hit a pothole. Roads, like many other components of the national infrastructure, are such an integral part of everyday life that Americans take them for granted. For the average American, it would be difficult to imagine not being able to get to just about anywhere by road. However, for the average family living in Myanmar, the exact opposite is true.

A country that is practically cut off from its neighbors in terms of surface transportation and that has very few internal roads connecting its cities to one another,<sup>1</sup> Myanmar's transportation infrastructure stands in stark contrast to the transportation infrastructure of the United States or, for that matter, much of the western world. A 2012 logistics index distributed by the World Bank rated Myanmar's infrastructure in the bottom 15 percent of 155 nations.<sup>2</sup> Myanmar, more commonly referred to as Burma in the west,<sup>3</sup> emerged from British rule in 1948 on a path that should have led it to regional predominance in the latter half of the twentieth century.<sup>4</sup> Instead years of mismanagement under oppressive military rule left the country in ruin.<sup>5</sup> But there is hope for a better future.

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<sup>1</sup> Lex Rieffel, "The Myanmar Economy: Tough Choices," Global Economy and Development Working Paper 51 (Brookings Institute, 2012), 11.

<sup>2</sup> KPMG, *Infrastructure in Myanmar* (Yangon, Myanmar: KPMG Advisory (Myanmar) Limited, 2013), 3.

<sup>3</sup> The official name of the nation was changed to the Union of Myanmar in 1989 but the United States and many other western nations still refer to it as Burma.

<sup>4</sup> Rieffel, 1.

<sup>5</sup> Ibid.

In 2010, Myanmar witnessed its first elections in over two decades, bringing to fruition expectations set forth in the 2008 constitution.<sup>6</sup> In March 2011 the newly elected government was seated, and it quickly dismissed many of the preexisting policies that proved detrimental to its maturation as a nation, to include economic growth.<sup>7</sup> The new Government of the Union of Myanmar (GOUM) announced sweeping social and economic reforms and initiatives, among them improvements in infrastructure.<sup>8</sup> Other countries in the region took notice. Myanmar's geographic location is of strategic value to China, as well as Thailand, India, and other members of the Association of Southeast Asian Nations (ASEAN).<sup>9</sup> Consequently, many of these nations have already begun making investments in infrastructure projects within Myanmar.<sup>10</sup> Additionally, the United States Agency for International Development (USAID) has been supporting the Lower Mekong Initiative (LMI) since 2009.<sup>11</sup> The LMI aims to improve social and economic conditions for the nations across the lower Mekong region by providing education assistance, as well as partnerships with the American private sector.<sup>12</sup> Physical connectivity is one of the focus items of this initiative and it directly impacts Myanmar.<sup>13</sup>

There is no doubt that Myanmar's transportation infrastructure requires improvements across the board, but the GOUM should pursue these improvements

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<sup>6</sup> Rieffel, 1.

<sup>7</sup> Ibid., 2.

<sup>8</sup> KPMG, 5.

<sup>9</sup> Aung Min and Toshihiro Kudo, "Newly Emerging Industrial Development Nodes in Myanmar: Ports, Roads, Industrial Zones along Economic Corridors," in *Emerging Economic Corridors in the Mekong Region*, BRC Research Report Number 8, ed. Masami Ishida (Bangkok Research Center, IDE-JETRO, 2012), 187.

<sup>10</sup> Ibid., 187.

<sup>11</sup> Lower Mekong Initiative (LMI), USAID, last modified on 17 June 2014, <http://www.usaid.gov/asia-regional/lower-mekong-initiative-lmi>.

<sup>12</sup> Ibid.

<sup>13</sup> Ibid.

methodically. Infrastructure planning can be a daunting task in any society, and it can lead to expensive errors if not done carefully. An increasing number of city governments in developed urban areas are beginning to utilize a multi-modal approach when pursuing transportation projects to design the most efficient arrangement.<sup>14</sup>

However, when attempting to establish a transportation system in a nascent area, it is sometimes tempting for a government to focus on lucrative big ticket items, like high-speed rail. This temptation is even more prevalent when courting foreign investors to spur economic growth via transnational trade and commerce. But in a developing economy, empirical evidence supports the view that increased mobility for the population via a networked system of roads is the most critical element to economic prosperity.<sup>15</sup>

Furthermore, some studies have demonstrated that insufficient roads between transportation hubs create congestion and leads to bottlenecks within the transportation system, which can stall economic growth.<sup>16</sup> Therefore, as the GOUM pursues transportation infrastructure projects, roads need to be at the top of their list. Investments in a networked system of primary and secondary roads should be GOUM's first major transportation infrastructure priority to ensure the country gets on the right path toward economic success.

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<sup>14</sup> Multimodal transportation planning is a process that looks at all modes of transportation within a geographic area, from pedestrian to public transit, and systematically develops the most cost effective means to address infrastructure improvements through a blended mix of different modes of travel. Often, some method of modeling is used to capture a variety of needs; to include workweek commuter travel loads, commerce transit loads, parking, land use, and other related activity.

<sup>15</sup> Cesar Querioz and Surhid Gautam, "Road Infrastructure and Economic Development: Some Diagnostic Indicators," West Africa Department and Infrastructure and Urban Development Department Policy Research Working Papers-Transport (The World Bank, 1992), 1.

<sup>16</sup> Tai Hui, et al, "Indonesia- Infrastructure Bottlenecks," Global Research Special Report (Standard Chartered Bank, 2011), 5.



## Myanmar's Strategic Importance

Before this paper begins an examination of surface transportation infrastructure, it is necessary to describe what makes Myanmar so important in the first place. As it was alluded to earlier, it is all about location. Myanmar sits at the epicenter of a region that contains over one-third of the Earth's population.<sup>17</sup> Over the next ten years, this region is expected to see a surge in consumers, with at least 50 percent of them projected to live within a few hours flight from Myanmar.<sup>18</sup> The regional economies are quickly expanding and becoming more integrated, with Myanmar at the heart of it all.<sup>19</sup> Additionally, the Southeast Asian nations see the transportation sector as a key element in this expansion.<sup>20</sup> Consequently, they are exploring an increasing number of plans that include Myanmar in various forms.<sup>21</sup>

In fact, Myanmar had already been integrated into a subregional plan first proposed in 1998 by the Greater Mekong Subregion (GMS) at its eighth ministerial meeting.<sup>22</sup> This plan is called the East-West Economic Corridor (EWEC), and the Asian Development Bank (ADB) endorses it.<sup>23</sup> Its ambitious goal is to boost economic growth and combat poverty across the GMS, from Vietnam, through Laos, Thailand and into Myanmar.<sup>24</sup> The first phase of the EWEC was to construct a transport corridor from Da Nang in Vietnam to Mawlamyine

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<sup>17</sup> Heang Chhor et al, *Myanmar's Moment: Unique Opportunities, Major Challenges* (Bangkok, Thailand: McKinsey Global Institute, 2013), 2.

<sup>18</sup> Ibid., 3.

<sup>19</sup> Ibid.

<sup>20</sup> ASEAN, *Master Plan on ASEAN Connectivity* (Jakarta, Indonesia: ASEAN Secretariat, 2010), 1.

<sup>21</sup> Ibid.

<sup>22</sup> Montague Lord, "East-West Corridor Strategy and Action Plan," RETA-6310, Development Study of the East-West Economic Corridor, Greater Mekong Subregion (Asian Development Bank, 2009), 1.

<sup>23</sup> Ibid., 1.

<sup>24</sup> Ibid.

in Myanmar along a strategic east-west track.<sup>25</sup> This track would be able to link up with various north-south tracks at carefully selected hubs.<sup>26</sup> Now the focus on Myanmar extends beyond the GMS.

Eager to demonstrate their support for Myanmar's economic momentum, and recognizing Myanmar's motivation and preparedness to contribute to the region's economic success, ASEAN selected Myanmar as its chair for 2014.<sup>27</sup> As the GOUM moves forward with its bold reformation agenda, ASEAN is hopeful that Myanmar will rapidly make up for years of lost ground with respect to regional synchronization.<sup>28</sup> Among the many advantages that the GOUM is hopeful to capitalize on via ASEAN is the potential for greater infusion of foreign direct investment (FDI).<sup>29</sup> The GOUM's view is that it needs deeper foreign investments in order to make improvements to the country's infrastructure, which in turn will fuel economic growth.<sup>30</sup>

Though the comprehensive health of the regional economy certainly has a role to play in Myanmar's lynchpin status, the individual motivations of its neighbors need to be understood. Indeed, even before Myanmar's sweeping reforms, China was already investing heavily, providing the equivalent of almost 13 billion USD by 2011.<sup>31</sup> For China's remote Yunnan and Sichuan provinces, Myanmar is a gateway to trade with the Middle East via the

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<sup>25</sup> Lord, 1.

<sup>26</sup> Ibid.

<sup>27</sup> Chhor, 2.

<sup>28</sup> Moe Thuzar, "Myanmar: Facing the Future," in *Regional Economic Outlook, Southeast Asia 2012-2013*, eds. Michael J. Montesano and Lee Poh Onn (Singapore: Institute of Southeast Asian Studies, 2012), 115.

<sup>29</sup> Ibid., 115.

<sup>30</sup> Ibid.

<sup>31</sup> Yun Sun, "Chinese Investment in Myanmar: What Lies Ahead," Great Powers and the Changing Myanmar, Issue Brief Number 1 (Stimson Center, 2013), 2.

Indian Ocean.<sup>32</sup> Access through Myanmar will also allow China to have greater ties to ASEAN, so the Chinese have explored the possibility for substantial investments in transport infrastructure such as roads and rail.<sup>33</sup>

Of course, China is not the only regional powerhouse that has its eyes on Myanmar based on location and access. Like China, India has looked to infrastructure investments in Myanmar as a means to accommodate Indian self-interests. Historically, the northeast Indian states of Mizoram and Manipur have been difficult to reach from the rest of the Indian subcontinent.<sup>34</sup> For example, an inland overwater route from Calcutta to Aizawl in Mizoram stretches for more than 1,200 miles.<sup>35</sup> In order to shave 400 miles off that trip and provide an avenue for more sustained commerce between the northeastern states and Myanmar's Rakhine state, India entered into an agreement with Myanmar in 2008 to develop a port at Sittwe (see Figure 1).<sup>36</sup> Of course, this is just one example of Indian projects in Myanmar, more will be discussed later in the paper.

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<sup>32</sup> Isabel Hilton, "China in Myanmar: Implications for the Future," October Report (Norwegian Peacebuilding Resource Center, 2013), 1.

<sup>33</sup> Hilton, 2.

<sup>34</sup> Min and Kudo, 202.

<sup>35</sup> Ibid.

<sup>36</sup> Ibid.



Figure 1 - Sittwe Port; Source: *Kalandan Multi-Modal Transit Transport Project, Arakan Rivers Network*, November 2009

Like its neighbors to the north and west, Myanmar's location is very important to its neighbor to the east. Similar to China, Thailand is also at the mercy of the resource delivery choke point represented by the Straits of Malacca. Consequently, the Government of Thailand has looked to transportation infrastructure investments in Myanmar beyond the scope of the GMS as a means to bolster economic sustainability.<sup>37</sup> There are currently a number of Thai projects underway in Myanmar, indicating that Thailand seems to expect its connection to the Bay of Bengal through Myanmar to be a fruitful one.

Another one of Myanmar's neighbors that sees fruitful potential in transportation infrastructure investments within Myanmar is Bangladesh. Along with China and India, Bangladesh has traditionally acknowledged Myanmar's strategic location, having long been a

<sup>37</sup> Min and Kudo, 187.

member of the Forum for Regional Economic Cooperation among Bangladesh, China, India, and Myanmar (BCIM).<sup>38</sup> The BCIM encompasses nine percent of the world's surface area and is considered to be one of the wealthiest sub-regions in terms of natural resources.<sup>39</sup> In much the same way that Myanmar can link China to South East Asia over surface, Bangladesh sees itself as a conduit for extended surface transportation between the nations of the Mekong subregion and greater India.<sup>40</sup>

Does this regional level of importance make Myanmar significant to American interests? When looked at from the perspective of America's strategic rebalancing to the Pacific, it does. As stated in the January 2012 strategic guidance document published by the Department of Defense, entitled *Sustaining U.S. Global Leadership: Priorities for the 21st Century Defense*:

U.S. economic and security interests are inextricably linked to the developments in the arc extending ... **into the Indian Ocean region and South Asia** ... We will **emphasize our existing alliances ... expand our networks of cooperation with emerging partners** ... ensure collective capability and capacity for **securing common interests**. The United States is also **investing in a long-term strategic partnership with India** [emphasis added].<sup>41</sup>

It is clear that the United States is making a firm commitment to the region as part of its new strategy. Myanmar's vital importance to its neighbors, among them nations that have alliances with the United States or that the United States is looking to strengthen, makes Myanmar important to American interests by extension at the very least. Perhaps in

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<sup>38</sup> Debapriya Bhattacharya and Mashfique Ibne Akbar, "Recent Developments in Myanmar and New Opportunities for Sub-Regional Cooperation: A Bangladesh Perspective," Research Paper (Bangladesh Center for Policy Dialogue, 2012), 3.

<sup>39</sup> Ibid., 4.

<sup>40</sup> Ibid.

<sup>41</sup> U.S. Department of Defense, *Sustaining U.S. Global Leadership: Priorities for 21st Century Defense* (Washington, DC: 2012), 2.

recognition of this future prospect in Myanmar, the United States has temporarily lifted a large portion of its economic sanctions in place against Myanmar.<sup>42</sup>

Interestingly, the European Union (EU) followed suit but went further by unanimously voting to lift all trade and investment sanctions.<sup>43</sup> This action prompted the United States to dispatch its Trade Representative to Myanmar to begin a dialog that may eventually lead to a new Trade and Investment Framework.<sup>44</sup> According to Jean-Pierre Verbiest, a business advisor in Myanmar who was formerly a country manager for the ASB, dispatching the Trade Representative to Myanmar is seen as clear evidence that the United States is interested.<sup>45</sup>

The apparent American interest joins the growing number of powerful economies that have their sights fixed on Myanmar, to include the Japanese who have recently established a foothold there, as well as the Chinese who, as this paper has established, have been there a while.<sup>46</sup> The Japanese foothold may prove especially lucrative since Japan's banks have secured three of the coveted nine licenses enabling foreign banks to do business

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<sup>42</sup> Paul Eckert, ed. Peter Cooney, "U.S. lifts more sanctions on Myanmar to support reforms," *Reuters*, 2 May 2013, <http://www.reuters.com/article/2013/05/02/us-myanmar-usa-sanctions-idUSBRE9411AR20130502>.

<sup>43</sup> Damien McElroy, "EU to lift sanctions against Burma permanently," *The Telegraph*, 19 April 2013, <http://www.telegraph.co.uk/news/worldnews/asia/burmamyanmar/10006542/EU-to-lift-sanctions-against-Burma-permanently.html>.

<sup>44</sup> *Bloomberg*, "U.S. Moves to Boost Myanmar Trade Ties after EU Lifts Sanctions," 24 April 2014, <http://www.bloomberg.com/news/2013-04-24/u-s-moves-to-boost-myanmar-trade-ties-after-eu-lifts-sanctions.html>.

<sup>45</sup> *Ibid.*

<sup>46</sup> *Ibid.*

in Myanmar.<sup>47</sup> In fact, Japanese investors have been looking to invest heavily in Myanmar as evidenced by their keen interests in major infrastructure, like the Tilawa Industrial Park.<sup>48</sup>

### **Attracting Investors**

With all the foreign interests in infrastructure projects, the GOUM has undertaken some deliberate steps to promote FDI. Indeed, Myanmar is acutely aware of two things: (1) the future growth of its economy is dependent on drawing FDI, especially in industrial and service-related fields; (2) that adequate infrastructure is critical to making Myanmar attractive to foreign investors.<sup>49</sup> However, as the GOUM embarked on its new reforms, a significant deterrent to foreign investor confidence in Myanmar was the country's outstanding debt.<sup>50</sup> In order to boost that confidence, the GOUM worked with the World Bank and the ADB to restructure its debt and open the door for new loans that could be applied to infrastructure projects.<sup>51</sup> By the end of fiscal year 2013, the GOUM was able to garner 40 billion USD for energy sector related infrastructure projects as well as infrastructure projects associated with Dawei, Kayaukphyu, and Thilawa special economic zones (SEZ).<sup>52</sup> But that was just the beginning.

At the end of calendar year 2012, the GOUM passed a Foreign Investment Law (FIL) aimed at fostering more FDI by: (1) allowing foreign investors to have complete ownership in a large number of sectors; (2) allowing land to be leased long-term; (3) providing large tax

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<sup>47</sup> Clint Richards, "Japanese Banks Win Big in Myanmar," *The Diplomat*, 2 October 2014, <http://thediplomat.com/2014/10/japanese-banks-win-big-in-myanmar/>.

<sup>48</sup> Richards.

<sup>49</sup> Manassinee Moottatarn, "The Gold Rush into Burma/Myanmar: Finding the EU's Niche," Briefing Paper 2012/5 (European Institute for Asian Studies, 2012), 8.

<sup>50</sup> KPMG, 4.

<sup>51</sup> *Ibid.*, 4.

<sup>52</sup> *Ibid.*

incentives for infrastructure-related investments.<sup>53</sup> Then in January of 2013, the GOUM unveiled the Framework for Economic and Social Reform (FESR) that outlined a prioritized list of policies.<sup>54</sup> Among them the desire to further develop industrial capacity as well as pursuing greater investments for regional development.<sup>55</sup> In order to attain the priorities set forth in the FESR, the GOUM has devised a plan to secure victories in ten areas they have identified as key; one of those areas is infrastructure development, with transportation systems leading the list.<sup>56</sup> But the GOUM did not stop there.

In January 2014, the GOUM passed the Myanmar SEZ Law, which provides further incentives for developers.<sup>57</sup> Among these incentives are the rights for developers to organize and sub-contract as they see fit to carry out infrastructure projects within the SEZ.<sup>58</sup> Furthermore, tax incentives have been expanded to provide complete income tax exemptions for the first eight years, followed by reduced income taxation in subsequent five-year intervals provided some additional reinvestment stipulations are met.<sup>59</sup> More importantly, there is language in the measure that allows for expansion of incentives to developers outside the SEZ who are working on infrastructure projects connected to developers within the

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<sup>53</sup> Ibid.

<sup>54</sup> KPMG, 5.

<sup>55</sup> Ibid., 5.

<sup>56</sup> Ibid., 5.

<sup>57</sup> The Pyidaungsu Hluttaw, Government of the Union of Myanmar, *Myanmar Special Economic Law, 2014 (Law Number 1/2014)*, Nay Pyi Taw: Government of the Union of Myanmar, 2014,  
[http://www.dica.gov.mm/includes/MSEZ%20Law%20PDF/MSEZ%20Law%20Eng%20PDF%20\(24-6-14\).pdf](http://www.dica.gov.mm/includes/MSEZ%20Law%20PDF/MSEZ%20Law%20Eng%20PDF%20(24-6-14).pdf).

<sup>58</sup> Ibid., 23-24.

<sup>59</sup> Ibid., 24.



SEZ.<sup>60</sup> Finally, there is language in the measure that allows for additional privileges for transport infrastructure projects that require more time to recover investment costs.<sup>61</sup>

### **The Case for Transportation**

It seems that the GOUM is placing substantial stock in its transportation infrastructure as a means to expand its economic potential. They are not alone. In 2010, ASEAN's Master Plan called for substantial infrastructure spending among all its member nations.<sup>62</sup> India is expecting to add or upgrade over 12,000 miles in the next few years<sup>63</sup> and Indonesia is planning on raising infrastructure spending by 15 percent while also seeking to finance nearly 250 million USD for improvements across their transportation spectrum.<sup>64</sup> There are a number of economic studies to support the hypothesis that transportation infrastructure drives successful economic development, but one in particular looked specifically at Asia.<sup>65</sup> The study concluded that the countries with the highest potential to reap the benefits of transnational trade as a way to fuel their economies were the ones that had made improvements in transportation infrastructure that reduced transportation costs.<sup>66</sup>

### **Is There Another Way?**

It is important to note that when one speaks of transportation infrastructure the conversation is not just about roads. In fact, when engaging in transport planning, city

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<sup>60</sup> Ibid.

<sup>61</sup> Ibid.

<sup>62</sup> ASEAN, 1.

<sup>63</sup> Jonathan D. Miller, "Infrastructure 2013: Global Priorities, Global Insights," Research Paper (Urban Land Institute and Ernst & Young, 2013), I-27.

<sup>64</sup> Ibid., I-29.

<sup>65</sup> One of the most useful models to correlate transportation infrastructure to transnational trade is called a Gravity Model. This study used a multi-variable Gravity Model that looked at transaction costs, a country's import infrastructure, export infrastructure, and distance.

<sup>66</sup> Prabir De, "Trade, Infrastructure and Transaction Costs: The Imperatives for Asian Economic Cooperation," *Journal of Economic Integration*, 21(4) (2006).

planners using the multi-modal approach look at all modes of transport, to include walking and cycling, and all types of infrastructure in addition to roads.<sup>67</sup> In a developed society a considerable amount of time is spent on looking for alternatives to transportation expansion via roads due to a variety of reasons, from environmental concerns to maximizing urban transport efficiencies.<sup>68</sup> A 1994 study for Greenpeace examined the link between building roads and the economic benefits for the EU and found that there was no correlation.<sup>69</sup> According to the study, some areas that had poor road access outperformed areas with robust road access.<sup>70</sup> Furthermore, when areas that had comparably good road access were studied, the results demonstrated that the economic output varied among them.<sup>71</sup>

In terms of rail over roads, there continues to be heated discussions on how governments should spend their taxpayers' dollars. In the United States, for example, there are two camps. On the one hand, there are the proponents of automobile transportation that argue American roads, highways, and bridges need more money, with the Department of Transportation publishing figures ranging from 123.7 to 145.9 billion USD.<sup>72</sup> On the other hand, there are those who argue that what America needs are more public transit systems, citing examples such as the Washington-Baltimore transit system which is heavily serviced by a robust rail system.<sup>73</sup>

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<sup>67</sup> Todd Litman, "Introduction to Multi-Modal Transportation Planning: Principles and Practices," Research Paper (Victoria Transport Policy Institute, 2014), 5.

<sup>68</sup> Ibid., 7.

<sup>69</sup> John Whitelegg, *Roads, Jobs and the Economy*, A Report for Greenpeace (White Cross, Lancaster: Eco-Logica Ltd, 1994), 14.

<sup>70</sup> Ibid., 14.

<sup>71</sup> Ibid.

<sup>72</sup> Micheline Maynard, "Roads Versus Rail: The Big Battle Over Public Transportation," *Forbes*, 16 April 2014, <http://forbes.com/sites/michelinemaynard/roads-versus-rail-the-big-battle-over-public-transportation.html>.

<sup>73</sup> Ibid.

Some proponents of mass transit rail systems have used a comprehensive total cost approach to inform the argument that rail will save money over the long-term.<sup>74</sup> Through quantitative analyses,<sup>75</sup> their studies have shown that investments in rail systems outperform investments in roads when the total life cycle costs of motor vehicles are considered in addition to increases in parking costs, costs due to vehicular accidents, and costs due to increased congestion.<sup>76</sup> Additionally, there are the freight transport costs. A U.S. Government Accounting Office study demonstrated that, when looking at additional costs borne by the public which are necessary to sustain surface infrastructure (maintenance, regulatory enforcement, public safety), rail was nearly 85 percent less costly.<sup>77</sup>

### **The Right Path**

At first glance, it may appear that the case for roads is wrongheaded. But a deeper look reveals that it is not. First, the studies above either dealt with developed urban areas that already possessed a substantial networked road system or were conducted in a nation that was already industrialized. Second, many of these types of studies focused on internal

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<sup>74</sup> Todd Litman, “Evaluating Public Transit Benefits and Costs: Best Practices Guidebook,” Research Paper (Victoria Transport Policy Institute, 2014), 108.

<sup>75</sup> A number of studies have looked at this subject through the logistical lens of supply chain management. One recent study conducted by Hans Ittman and David King entitled “The State of Logistics – an overview of logistics in South Africa,” looked at domestic logistics costs as a percentage of Gross Domestic Product and found that shifting more freight from road to rail lowered logistics costs considerably. This study focused on countries with healthy Logistics Performance Index values; a figure calculated by reviewing a country’s performance in a number of factors such as customs clearance efficiency and tracking capabilities.

<sup>76</sup> Litman, “Evaluating Public Transit Benefits and Costs: Best Practices Guidebook,” 108-109.

<sup>77</sup> Bill Holloway et al, “Getting the Goods without the Bads: Freight Transportation Demand Management Strategies to Reduce Urban Impacts,” CFIRE 07-02 (National Center for Freight and Infrastructure Research and Education, Department of Civil and Environmental Engineering, College of Engineering, University of Wisconsin-Madison, 2013), i.

marginal costs<sup>78</sup> and benefits, neglecting the impact of things external to domestic planning like the sustainment of international trade. When dealing with developing economies, the empirical evidence overwhelmingly supports networked roads as the means that generate the most economic growth potential and return on investments.<sup>79</sup> Furthermore, in certain cases, where the positive impact of international trade is readily apparent due to a nation's strategic location, investiture in roads has shown very promising potential.<sup>80</sup>

A recently released joint study conducted by the University of Chicago's Booth Business School and the Department of Economics at Turkey's Belkent University looked at Turkey's investments to improve its network of roads over the last decade, investments which led to a net 24 percent increase in its interprovincial roads.<sup>81</sup> The study demonstrated that roads capable of sustaining a high volume of traffic significantly reduced the costs due to shipping while simultaneously capturing trade revenues ranging from 26 to 53 percent for regions distant from ports.<sup>82</sup>

Similarly, a regional analysis<sup>83</sup> conducted across the GMS found that positive trends in trade revenues between commercial nodes along the EWEC had generated significant

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<sup>78</sup> For the transportation sector, marginal costs are calculated based on the total costs per one additional mile of a particular transportation mode. For rail it would include the cost of rail cars, insurance, and fees in addition to the cost of track. For automobiles it would include the cost of buying and ensuring a car. Because these studies are meant to inform domestic policy, they do not take into account other revenues generated by things such as transnational trade.

<sup>79</sup> Querioz and Gautam, 2.

<sup>80</sup> A. Karem Cosar and Banu Demir, "Domestic Road Infrastructure and International Trade: Evidence from Turkey," Research Paper (Booth School of Business at the University of Chicago and Department of Economics at Bilkent University, 2014), 1.

<sup>81</sup> Ibid., 2.

<sup>82</sup> Ibid.

<sup>83</sup> As described in note 61, this study also used a Gravity Model, this time looking at transaction costs and other associated costs.

interests across the private sector.<sup>84</sup> These interests spurred initiatives to capitalize on the transit corridor itself for other industries such as tourism and travel, demonstrating potential to grow further the economy by creating service-related jobs.<sup>85</sup> For example, Thailand initially took the lead on managing cross-border issues along the transport corridor and as a result benefited substantially from the smooth flow of goods from Bangkok to Dan Nang.<sup>86</sup> This was due in large part to private sector interests that took advantage of the corridor's strategic proximity to a robust network of secondary roads and, as a result, Thailand witnessed rapid development of its northeastern region due to favorable investments.<sup>87</sup> Myanmar, on the other hand, did not reap the same benefit from the corridor, due in large part to the negative policies of the previous government.<sup>88</sup>

The goods traveling across the EWEC make use of the ports at Da Nang and Mawlamyine so the natural inclination is for investors to focus on the deep water seaports.<sup>89</sup> Indeed, deep water sea ports are another critical piece of surface transportation infrastructure that can slow the benefits of transnational trade, thereby slowing the economy as Indonesia has witnessed.<sup>90</sup> However, shortsightedness can cause one to become fixated on the “wow” factor of a major operation like a seaport and then neglect the other parts of the transport system. Supply chain managers utilize throughput capacity<sup>91</sup> along the supply chain to help

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<sup>84</sup> Lord, 10.

<sup>85</sup> Lord, 10-11.

<sup>86</sup> Ibid., 10.

<sup>87</sup> Ibid.

<sup>88</sup> Ibid., 52.

<sup>89</sup> Lord, 1.

<sup>90</sup> Miller, 12.

<sup>91</sup> Throughput capacity in logistics and supply chain management is the measure of volume the supply chain can handle before a choke point causes a slow down or stoppage. Costs associated with negative throughput are storage fees, costs of space allocated to holding areas, and increased costs due to delays in the system.

determine costs.<sup>92</sup> Insufficient throughput capacity can increase indirect transportation costs which can have a negative effect on revenue.<sup>93</sup> The port of Mombasa experienced this very thing in 2008, prompting a review that revealed the poor quality of the road network in Kenya was partially to blame.<sup>94</sup>

Similar to deep water seaports, rail is very attractive as a big ticket item, and it is very capable of being cost effective in the long-term within a well-developed area. However, the upfront costs can be daunting, considering the substantial expense due to track and related building materials.<sup>95</sup> Rail is also very expensive to operate, requiring the need for large sums of capital and very careful management.<sup>96</sup> This problem is exacerbated when dealing with construction and operation in a transnational environment.<sup>97</sup> The current status of rail infrastructure across the GMS is emblematic of this dilemma.<sup>98</sup>

Nearly all of the countries within the GMS are pursuing improvements to their rail systems.<sup>99</sup> However, there are shortfalls in the equipment required to operate along expanded railways, such as control systems, signaling, and locomotives.<sup>100</sup> Additionally, the existing

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<sup>92</sup> Booz Allen Hamilton Supply Chain and Logistics Division, "Managing Capacity Across a Constrained Supply Chain," <http://www.boozallen.com/media/file/Managing-Capacity-Across-Constrained-Supply-Chain.pdf> (accessed on 19 October 2014).

<sup>93</sup> Ibid., 1

<sup>94</sup> Joseph Atonga, P.E., Chief Operations Manager, "A Review of Mombasa Port Performance, Causes of Congestion and Way Forward" (presentation, Kenya Ports Authority, 25 September 2008).

<sup>95</sup> Dr. Jean-Paul Rodrigue and Dr. Brian Slack, *The Geography of Transport Systems*, 3rd Edition (NY: Routledge, 2013), III-3.

<sup>96</sup> Ibid., III-3.

<sup>97</sup> Ibid.

<sup>98</sup> Asian Development Bank, *Connecting the Greater Mekong Subregion railways: A strategic framework* (Mandaluyong City, Philippines: Asian Development Bank, 2010), 9.

<sup>99</sup> Ibid., 7.

<sup>100</sup> Ibid.

regulations governing operations are cumbersome, acting as a barrier to efficiency.<sup>101</sup> Then there is the issue of interoperability. Technical requirements are inconsistent across the GMS, with differing standards leading to compatibility problems.<sup>102</sup> This issue is further exacerbated by differences in track gauge, which hinders movement across borders.<sup>103</sup> Since the majority of rail is state-owned, the government has to decide how much it is willing to invest; this is a difficult task, made tougher when attempting to justify the expense to domestic audiences who see more pressing local needs. Unlike roads, rail cannot accommodate different types of vehicles or modes of travel, it is therefore of less utility to the domestic population.

It is at this nexus of domestic needs and transnational trade that roads reach their largest utility. As discussed earlier in the paper, the proximity of secondary roads to the EWCC gave Thailand an opportunity to exploit the transnational trade corridor for domestic growth. A networked system of roads that connects strategic thoroughfares with other parts of the country provide access and mobility for the population while also generating jobs in newly urbanized industrial zones. A great example of this can be found in Zimbabwe.

The road density in Zimbabwe places it in a comparable status to countries in the lower middle income of the Organization for Economic Cooperation and Development member countries.<sup>104</sup> It has a section of the Pan-African Highway passing through it which the country's freight throughput in support of transnational trade.<sup>105</sup> Zimbabwe also has a

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<sup>101</sup> Asian Development Bank, 8.

<sup>102</sup> *Ibid.*, 9.

<sup>103</sup> *Ibid.*

<sup>104</sup> African Development Bank, "Road Transport Services and Infrastructure," Zimbabwe Report, 2009, 9.1.1, [http://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/11.%20Zimbabwe%20Report\\_Chapter%209.pdf](http://www.afdb.org/fileadmin/uploads/afdb/Documents/Generic-Documents/11.%20Zimbabwe%20Report_Chapter%209.pdf) (accessed on 19 October 2014).

<sup>105</sup> *Ibid.*, 91.1.

substantial networked road system, connecting its people and domestic goods with its economic hubs.<sup>106</sup> Though the country has suffered some setbacks in infrastructure maintenance, it remains one of the most connected nations in Southern Africa.<sup>107</sup> When one considers the transnational benefits of networked roads with opportunity for increased population mobility and access, there is no question that the strategies in Southeast Asia which focus on roads are sound.

### **Getting Started**

With the aggressive measures it has undertaken with respect to economic incentives, the GOUM has demonstrated that it is motivated to get on the right track. There are some institutional challenges important to note however. First, there is the number of departments. The Ministry of Transport handles land transport policies, the Ministry of Construction handles public works and maintenance, and there are a number of other agencies that handle development for individual sectors.<sup>108</sup> Myanmar has indicated its commitment to meet the expectations of ASEAN's Master Plan and has also indicated it will prioritize development of roads connecting cities to rural areas in a balanced fashion across all its regions.<sup>109</sup>

For Myanmar, connection to rural areas directly impacts its rice industry. Rice is overwhelmingly Myanmar's top export.<sup>110</sup> Over the past few years, Myanmar's share has been on the decline, due in part to high transportation costs.<sup>111</sup> There are a few existing roads utilized for rice transport that are very near major proposed transnational trade corridors. If

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<sup>106</sup> African Development Bank, 9.1.1.

<sup>107</sup> Ibid., 9.3.1.

<sup>108</sup> KPMG, 6.

<sup>109</sup> Ibid., 6.

<sup>110</sup> World Bank, "Myanmar: Capitalizing on Rice Export Opportunities," Economic and Center Work Report Number 85804 (Bangkok, Thailand: World Bank, 2014), 1.

<sup>111</sup> Ibid., 22.



the GOUM carefully selects where to connect the nodes, they can capitalize on these corridors by providing new transnational avenues for rice exports that can drive down transport costs.

A few roads are used for freight transport out of Sittwe in the west, but the two major roads head to Yangon in the south.<sup>112</sup> There is also a proposal being worked for a road that would connect Sittwe to the EWEC.<sup>113</sup> If such a road is completed, it would bridge the existing domestic secondary road to a major corridor. In the Northwest, Monywa is within close proximity of the Asian Highway.<sup>114</sup> Besides rice, there are other commodities that are traded via Monywa along the Monya-Kalaymyo-Reed Road.<sup>115</sup> There is a road from Monywa to Mandalay that can eventually connect to the proposed road from Mandalay to the EWEC. Traditionally, the cross-border trade in the Northwest is favorable; connecting it to Mandalay would allow access for India, Myanmar, and Thailand.<sup>116</sup> Monywa also connects to Pakokku, that can connect to the Chin state.<sup>117</sup> The Ministry of Construction built a bridge across the Ayeyarwady River in Pakokku that can serve as a conduit for the BIMSTEC Highway<sup>118</sup> which would eventually connect all of the Mekong nations.<sup>119</sup> These projects represent but a fraction of the possibilities that the GOUM can explore (See Figure 2). But there are other projects currently being pursued that are being financed largely by FDI; the key is finding ways to connect them.

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<sup>112</sup> Min and Kudo, 201.

<sup>113</sup> Ibid., 204.

<sup>114</sup> Ibid., 213.

<sup>115</sup> Ibid.

<sup>116</sup> Ibid.

<sup>117</sup> Ibid., 220.

<sup>118</sup> The BIMSTEC Highway is a proposed mega-highway that would link Myanmar, Thailand, Laos, China, India, and Bangladesh.

<sup>119</sup> Ibid., 220.

## Current Projects for Foreign Investors

For the Chinese, the primary investments are related to three major physical infrastructure projects and one extraction industry project: the Myitsone Dam, the Sino-Myanmar gas and oil pipelines, and the Letpadaung Copper Mine.<sup>120</sup> However, a combination of pressure on the GOUM coupled with public resentment of Chinese presence in Myanmar have stalled two of these projects.<sup>121</sup> A major road project was negotiated in 2011 to build a portion of the Stilwell Road across the Myitkyina-Pangsau Pass,<sup>122</sup> and a rail line connecting China's Yunnan province with the Bay of Bengal was also awarded.<sup>123</sup> However the latter was placed on indefinite hold by the GOUM who cited that the project seemed unfairly biased to Chinese interest.<sup>124</sup>

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<sup>120</sup> Min and Kudo, 2.

<sup>121</sup> Ibid., 2, The Myitsone Dam was put on hold in the fall of 2011 while the Letpadaung mine was suspended in the fall of 2012. The gas pipeline was completed in 2013 and has begun servicing China; while the oil pipeline portion, though delayed, is expected to be operational by the end of 2014.

<sup>122</sup> KPMG, 6.

<sup>123</sup> Adam Pasick, "China's cancelled Burma railway is its latest derailment in Southeast Asia," *Obsessions-Borders on Quartz.com*, 25 July 2014, <http://qz.com/240436/chinas-cancelled-burma-railway-is-its-latest-derailment-in-southeast-asia/>.

<sup>124</sup> Ibid.



Figure 2 - Myanmar's Roads; Source: <http://himawaritravel.com/index.php/general-information/maps>

The Indians, along with the Sittwe port mentioned earlier in this paper, are dredging nearly 100 miles of the Kalandan River up to the city of Paletwa in the Rakhine state, building a jetty in Paletwa, and waiting for the GOUM to build an 80-mile road from Paletwa to the Myanmar-Mizoram border.<sup>125</sup> This endeavor is known as the Kalandan Multi-Modal Transport Project, and it represents a significant commitment on the part of the Indian government.<sup>126</sup>

But the Kalandan project road is not the only road through Myanmar in which India is interested. In 2012, India loaned the GOUM 500 million USD, in part to begin construction of a nearly 2,000 mile road that will eventually connect India's Mizoram and Manipur states to Southeast Asia.<sup>127</sup> Dubbed the trilateral highway, this new road is also being financed by the ASB and the World Bank and is expected to provide a thoroughfare for cargo from Thailand to India, fueling the economies of all three nations.<sup>128</sup>

Besides the trilateral highway, Thailand is investing in another project within Myanmar that includes a road as a major component—the Dawei Project.<sup>129</sup> An ambitious undertaking that will span several years, the first stage was an eight-lane highway spanning

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<sup>125</sup> M. Ramesh, "Essar hopes to complete work on Myanmar's Sittwe port by June," *The Hindu Business Line-Logistics*, 13 December 2013, <http://www.thehindubusinessline.com/industry-and-economy/logistics/essar-hopes-to-complete-work-on-myanmars-sittwe-port-by-june/article5456409.ece>.

<sup>126</sup> Gareth Price, "India's Policy towards Burma," Asia ASP 2013/02 (London: Chatham House, 2013), 4.

<sup>127</sup> *The Times of India-India Section*, "India-Thailand highway to be ready by 2016," 13 August 2012, <http://timesofindia.indiatimes.com/india/India-Thailand-highway-to-be-ready-by-2016/articleshow/15467637.cms>. This transit corridor will connect to Mandalay and would eventually extend to Thailand on a 40-mile stretch of road that has been proposed by the Government of Thailand.

<sup>128</sup> Ibid.

<sup>129</sup> Min and Kudo, 192.

between the port city and Kanchanaburi, Thailand.<sup>130</sup> The genius behind the Dawei Project is in Thailand's prioritization of the road over the deep water seaport.

On Myanmar's west border, Bangladesh is looking for a closer relationship that may be mutually beneficial. The states of Rahkine and Chin are isolated from the rest of Myanmar by the Arakan Mountains but could be easily accessible from Bangladesh.<sup>131</sup> However, there is currently no surface transportation infrastructure between Bangladesh and Myanmar, even though the BCIM has been a part of the Asian Land Transport Infrastructure Development Project, which includes the Asian Highway Network, since 1992.<sup>132</sup> An alternative project, the Tri-Nation Road Link, is currently in negotiation and would provide a means of linking Bangladesh to China via Myanmar.<sup>133</sup> Meanwhile, work has begun on the 83-mile Myanmar-Bangladesh highway, with the 27-mile cross-border portion already completed by Bangladesh.<sup>134</sup> The GOUM is supposed to complete the remainder, but the 128 million USD project does not currently have an estimated completion date.<sup>135</sup> Regardless, it is fairly clear that transportation infrastructure through Myanmar, firmly linked to overall regional economic growth, will continue to be crucially important to its regional neighbors.

### **The Way Forward**

The GOUM has, thus far, demonstrated motivated behavior with regards to tackling the infrastructure challenges that can prevent its economic growth from reaching the nation's full potential. An additional measure which would help streamline the transportation infrastructure line of effort and promote comprehensive multi-modal planning would be to

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<sup>130</sup> KPMG, 6.

<sup>131</sup> Ibid., 14.

<sup>132</sup> Ibid.

<sup>133</sup> Ibid.

<sup>134</sup> Ibid.

<sup>135</sup> Ibid.

consolidate national transportation planning. Regional urban centers could still retain autonomy to plan within their boundaries, but a joint board should be created to allow for synchronization of effort. Though the GOUM may lack the institutional capacity to realign their ministerial bureaucracy, as a starting point they can benchmark the efforts of other ASEAN nations that are pursuing similar transportation plans.

USAID could also assist the GOUM in an endeavor to build a national transportation plan under the LMI. The LMI's approach to development "leverages U.S. expertise in ... entrepreneurship and innovation."<sup>136</sup> There are several centers of excellence within American universities that could provide education and assistance to the GOUM for innovative transportation planning and entrepreneurial expansion of their transport sector.<sup>137</sup> For the U.S. government as a whole, Myanmar's current status may present an opportunity to put into action the words captured in the 2012 strategic guidance. If America truly seeks to rebalance to the Pacific, the opportunity to reengage with countries like Myanmar is a good place to start. The U.S. Trade Representative should return to Myanmar for another visit in order to continue demonstrating good faith in Myanmar's move to open its markets. Moreover, the Department of Commerce should begin a concerted effort to promote opportunities in Myanmar to the private sector, allowing American businesses to be the "boots on the ground" there.

Clearly Myanmar holds a significant amount of economic value for some of our key allies in the region. If the U.S. is serious about its economic interests being linked to the region, then the health of the regional economy has a direct impact to the U.S. economy.

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<sup>136</sup> LMI.

<sup>137</sup> The University of California-Los Angeles's Institute for Transportation Studies, New York University's Polytechnic School of Engineering, and Stanford University's Center for Entrepreneurial Studies are a few notable examples.

Furthermore, if the U.S. is serious about India's role in the region, and if it is serious about building partnership capacity, then proactive engagement with India and ASEAN is required, to include support to their endeavors. Direct involvement is not necessary in all facets, as long as the U.S. leverages existing alliances. Myanmar is currently reflecting a confluence of effort among the major players in the region; America does not need to sit this one out.

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